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EX PARTE OR LATE FILED

March 24, 1999

VIA HAND DELIVERY

Magalie Roman Salas, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: *Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions /*
MM Docket No. 97-217; RM-9060
Notice of Ex Parte Communication

Dear Ms. Salas:

This is to advise that on March 23, 1999, Doug Carey, Tom Peragine, Jerry Archambault and Chris Moritz of Spike Technologies, Inc. ("Spike"), with their counsel Steven A. Lancellotta, Esq. and the undersigned, met with Keith Larson, Assistant Chief (Engineering) of the Mass Media Bureau, Joseph Johnson and Michael Jacobs of the Bureau's staff, to discuss two issues that Spike raised in its Petition for Reconsideration in the above-referenced proceeding.

Specifically, Spike addressed an inconsistency in the rules pertaining to the reference level for the spectral mask, and the applicability of frequency tolerance standards to non-VSB digital transmissions. A copy of the presentation materials is appended hereto.

Please contact the undersigned should there be any questions regarding this *ex parte* presentation.

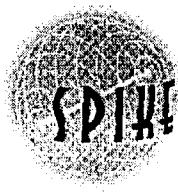
Respectfully submitted,

E. Lawrence Zolt

cc: Keith Larson
Joseph Johnson
Michael Jacobs

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No. of Copies rec'd 0 + 4
List A B C D E



Spike Technologies, Inc.

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- Spike background
- 2way Rulemaking - Spike submittals
- Spectral Mask
 - Inconsistency; Text Vs. Equations
 - Data Plots



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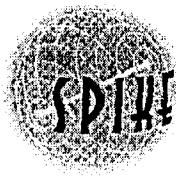
- Experimental License since 1996
 - Nashua NH facilities used for Technology development and Market Studies.
 - First CLEC with *wireless* access to the PSTN.
- PRIZM100 Transceiver type accepted May '98.
- Dual SuperQuest award winner; SuperComm '98.
- International Operations
 - Emergency response, Disaster relief, Distance Learning, Banking.
- German type approval completion February '99



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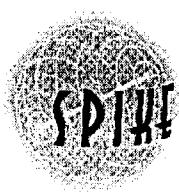
- Spike's January 8 1998 Comments
 - Allow Response station Hub to transmit or at least to co-locate with booster stations.
 - Definition revised to co-locate with boosters.
 - The Interference Methodology should not be based on population density.
 - It no longer is.
 - The Interference Methodology does not address TDMA systems.
 - It now does.



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- Spike's February 9 1998 Reply Comments
 - Request clarification that the Spectral Mask continues to be relative to the “licensed average power level”.
Figures 1 and 2.
 - Open issue
 - Frequency Tolerance non-relevance.
 - Open issue
 - Supported various Petitioner technical proposals.
 - Support streamlined application process.



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• February '98 Figures

Figure 1: Attenuation relative to licensed average channel power (2000W)

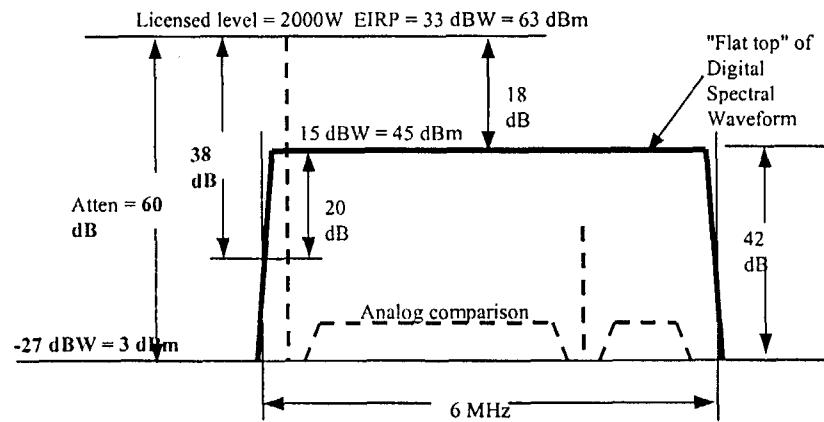
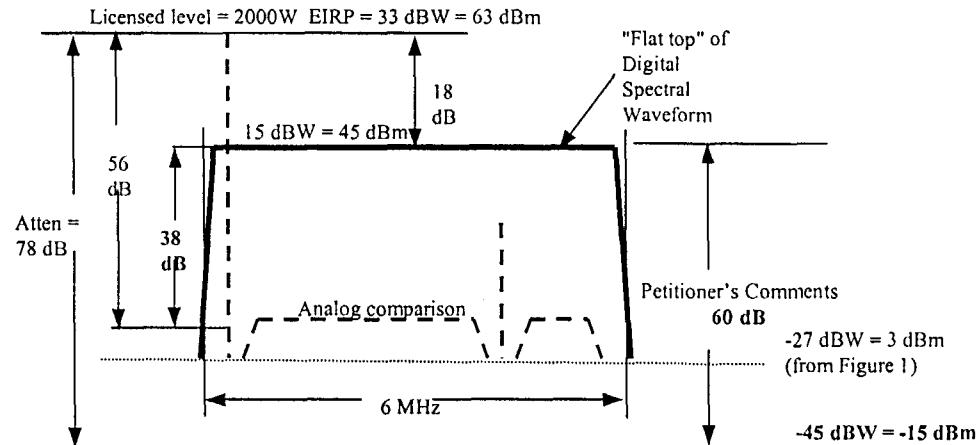


Figure 2: Attenuation relative to "flat-top" power



For both examples:

Licensed average power level = Total power in a 6 MHz channel.

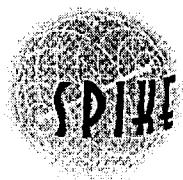
Out-of-band and "flat-top" levels based on 100 kHz measurement resolution bandwidth.

60 dB attenuation is measured at +/-3 MHz offset from channel edge.

The same rationale applies to 38 dB attenuation at the 6 MHz channel edge, and 35 dB attenuation at the 125 kHz channel edge.

Average level of digital spectral waveform (flat-top) is below total power by:

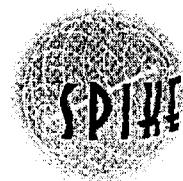
$$10 \log_{10} (\text{Channel}_{\text{BW}} / \text{Res}_{\text{BW}}) = 10 \log_{10} (6\text{MHz}/100\text{kHz}) = 17.8 \text{ dB}$$



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- Spike's July 2, 8 1998 Further Comments
 - Continue to request clarification that the Spectral Mask continues to be relative to the "licensed average power level". New figures 1 and 2 with supporting analysis.
 - Open issue
 - Wide mailing
 - Aside from petitioner's consultant, no company has offered any comment to this issue.



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- July '98 Figure 1

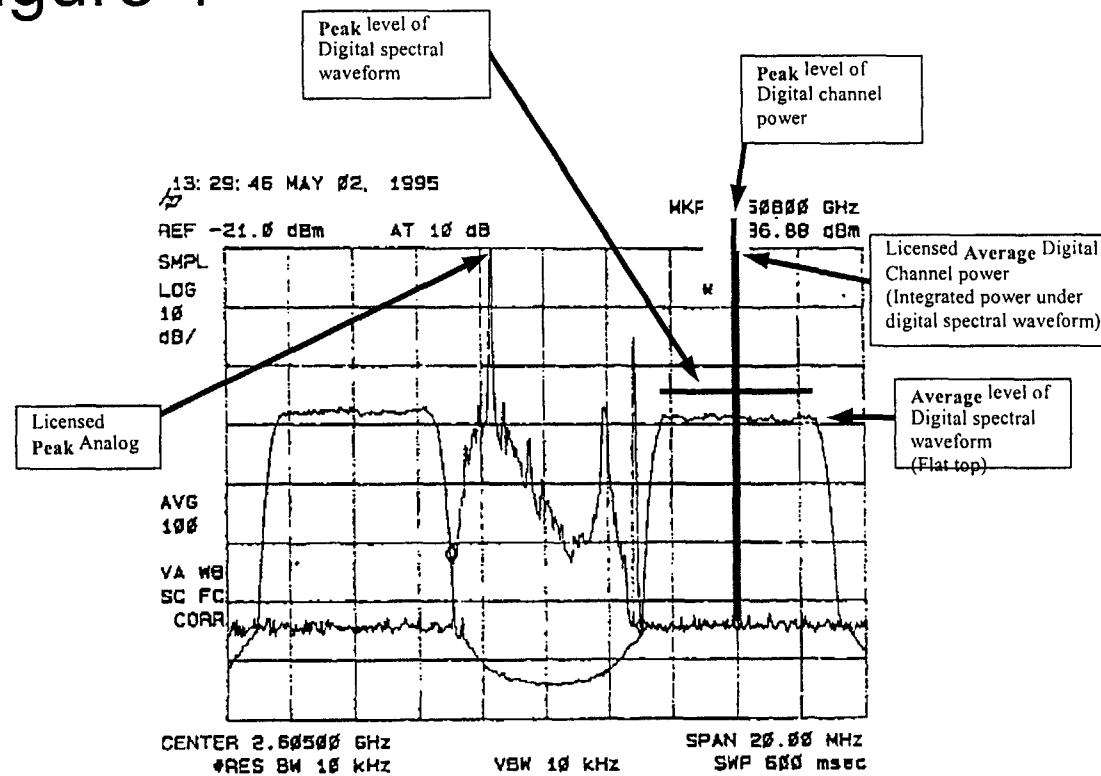


Figure 13 - Relative Levels of NTSC and 64-QAM Signals w/10 kHz Resolution Bandwidth
(27.78 dB correction factor required for digital signal levels)

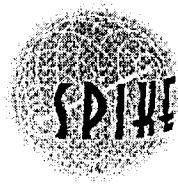
Revision 2.5

- 55 -

June 26, 1995

3/22/99

FIGURE 1



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- July '98 Figure 2

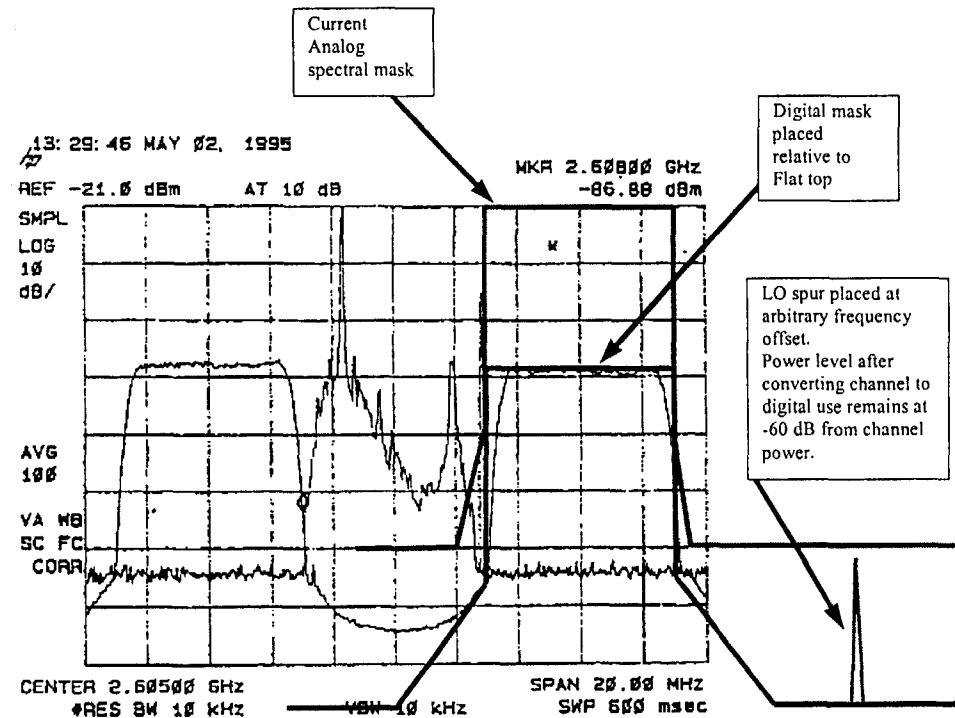


Figure 13 – Relative Levels of NTSC and 64-QAM Signals w/10 kHz Resolution Bandwidth
(27.78 dB correction factor required for digital signal levels)

Revision 2.5

- 55 -

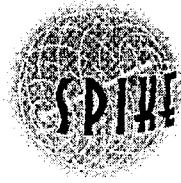
June 26, 1995



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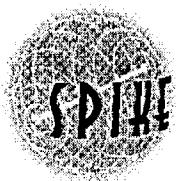
- Spike's December 28 1998 Reconsideration
 - Continue request for clarification of Spectral Mask
 - Open issue
 - Frequency Tolerance non-relevance.
 - Open issue - Latest petitions to relax tolerance.



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- The mask inconsistency is NOT about:
 - Peak to Average power back-off.
 - The difference in channel edge offset at the 60 dB points for analog vs. digital.
 - New relief at the channel edge to allow a 25 - 40 dB chamfer.
 - The ability to use varying Resolution bandwidths.
 - Uniform Spectral Density across the channel.



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- R&O 21.908 parts a-d Spectral mask. “*The Text*”.
 - “The maximum out-of-band power of an MDS station transmitter...employing digital modulation shall be attenuated at the 6 MHz channel edges at least 25 dB **relative to the licensed average 6 MHz channel power level**, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies.”



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- *The Text; Pictorially*

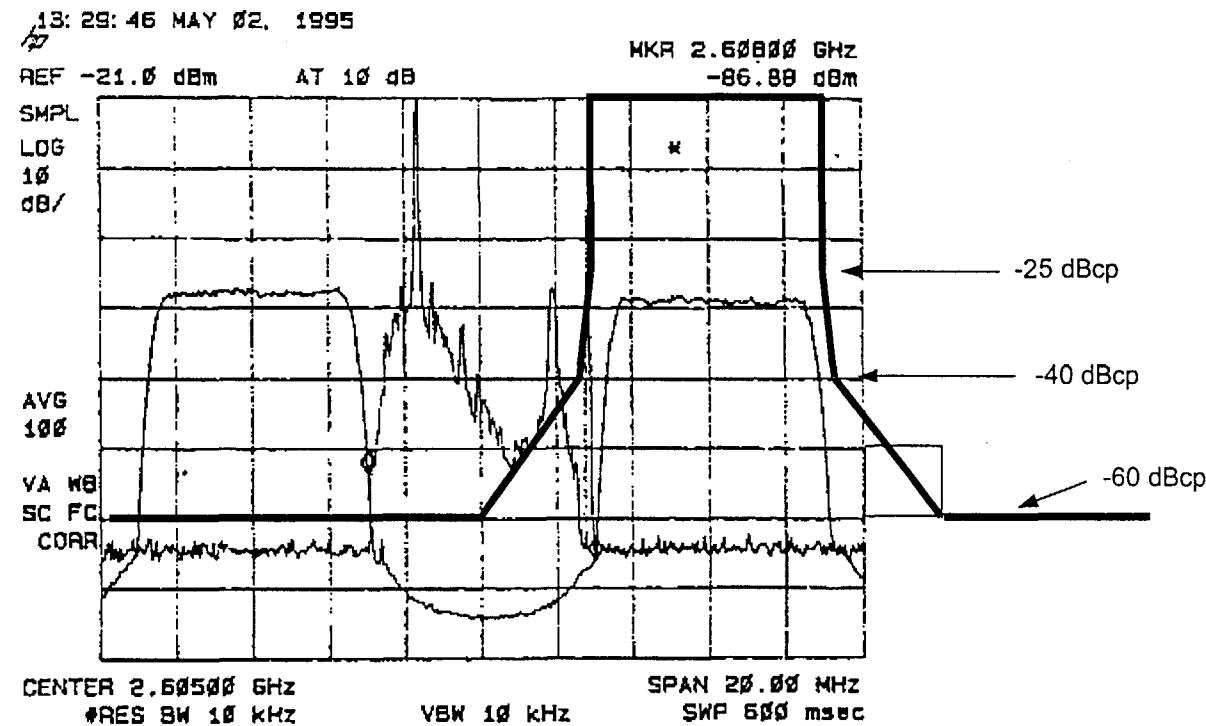


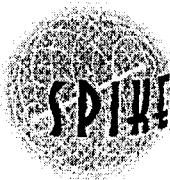
Figure I3 – Relative Levels of NTSC and 64-QAM Signals w/10 kHz Resolution Bandwidth
(27.78 dB correction factor required for digital signal levels)

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- R&O 21.908 part e. “*The Equations*”.
 - “In measuring compliance... employ one of two methods: (1) absolute power measurement of the average signal power with one instrument, with measurement of the spectral attenuation on a separate instrument; or (2) relative measurement of both the *average power* and the spectral attenuation on a single instrument.

For Absolute power measurements:

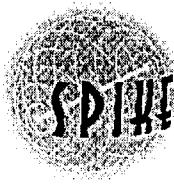
$$\text{Attenuation in dB (below channel power)} = A + 10\log(C_{BW}/R_{BW})$$

For Relative power measurements:

$$\text{Attenuation in dB (below flat top)} = A + 10\log(R_{BW1}/R_{BW2})$$

Where:

3/22 A_{sp} Attenuation specified for spectral point (e.g., 25, 35, 40, 60 dB)"



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- Absolute power equation; pictorially for 10kHz RB.
 $10\log(C_{BW}/R_{BW})=27.8 \text{ dB}$.

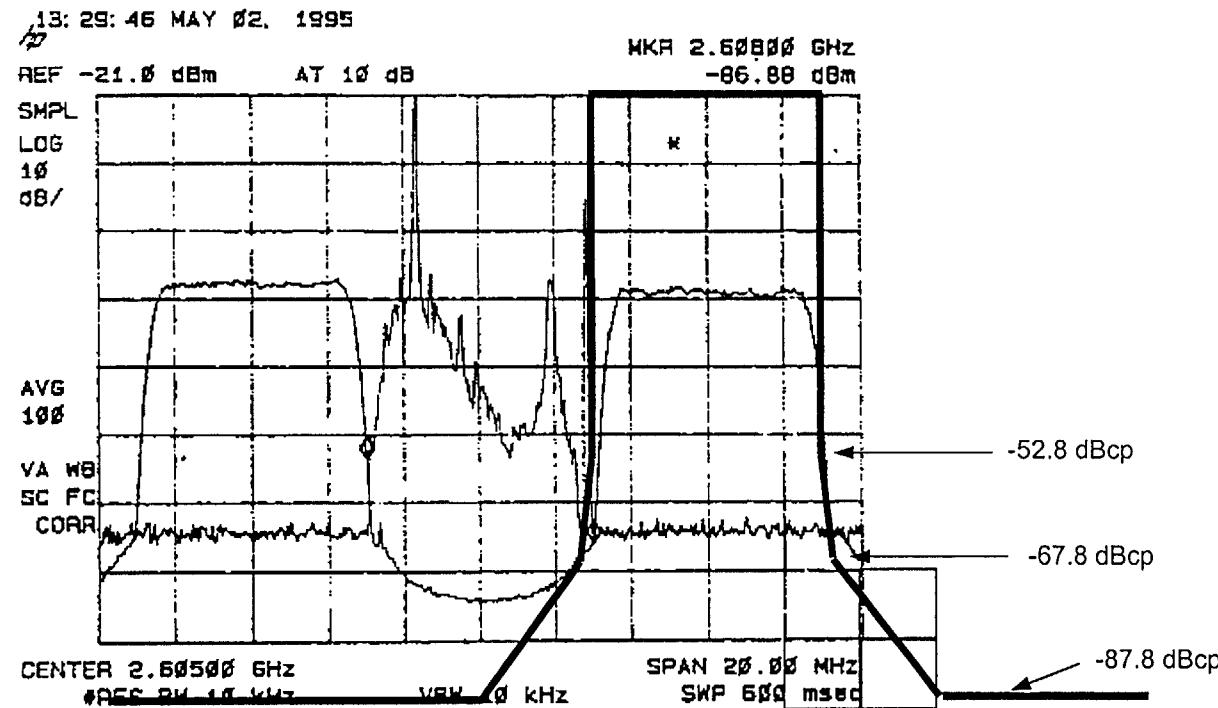
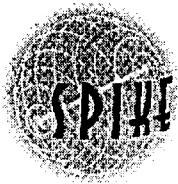


Figure 13 – Relative Levels of NTSC and 64-QAM Signals w/10 kHz Resolution Bandwidth
(27.78 dB correction factor required for digital signal levels)



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- Relative power equation; pictorially for
 $RB1=RB2= 10\text{kHz} \cdot 10\log(R_{BW1}/R_{BW2})=0$

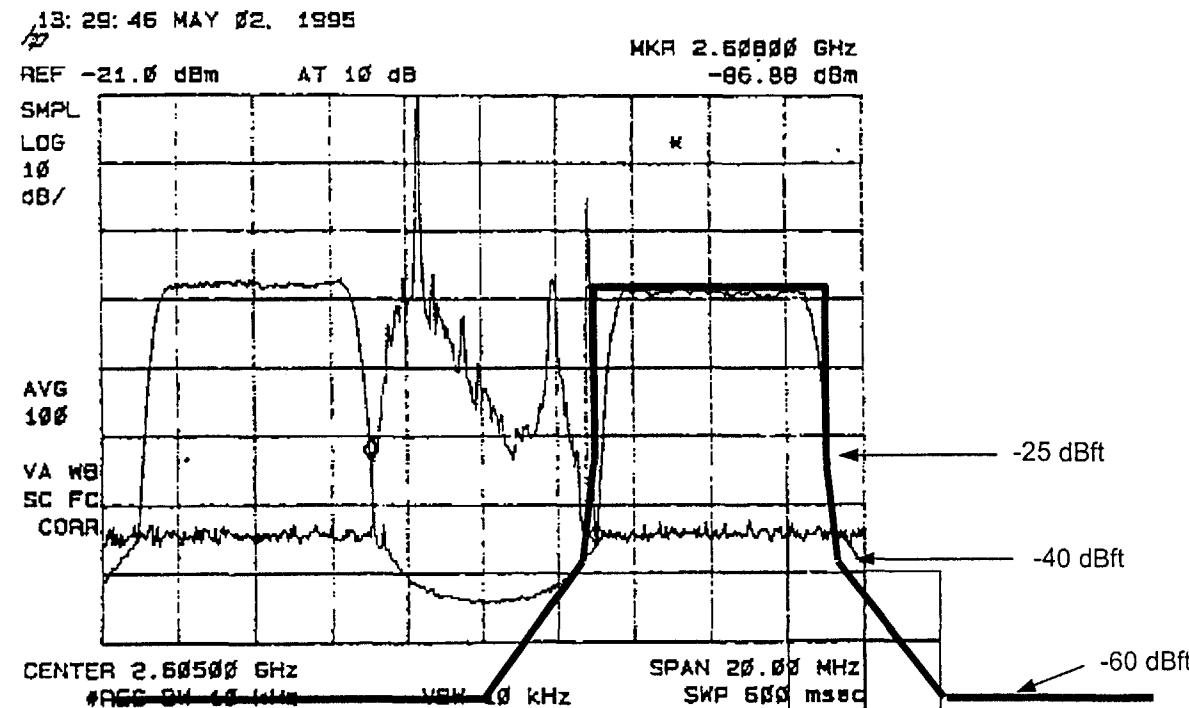
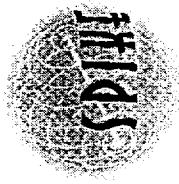


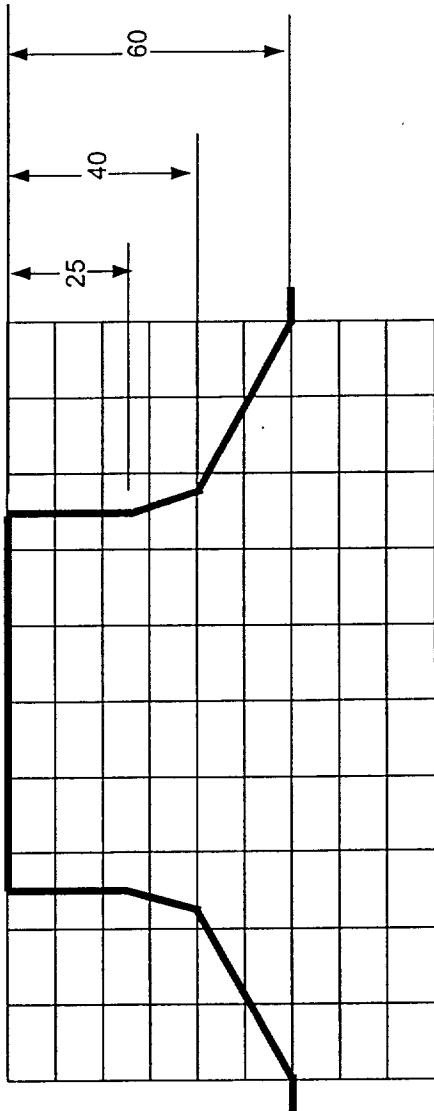
Figure 13 – Relative Levels of NTSC and 64-QAM Signals w/10 kHz Resolution Bandwidth
(27.78 dB correction factor required for digital signal levels)

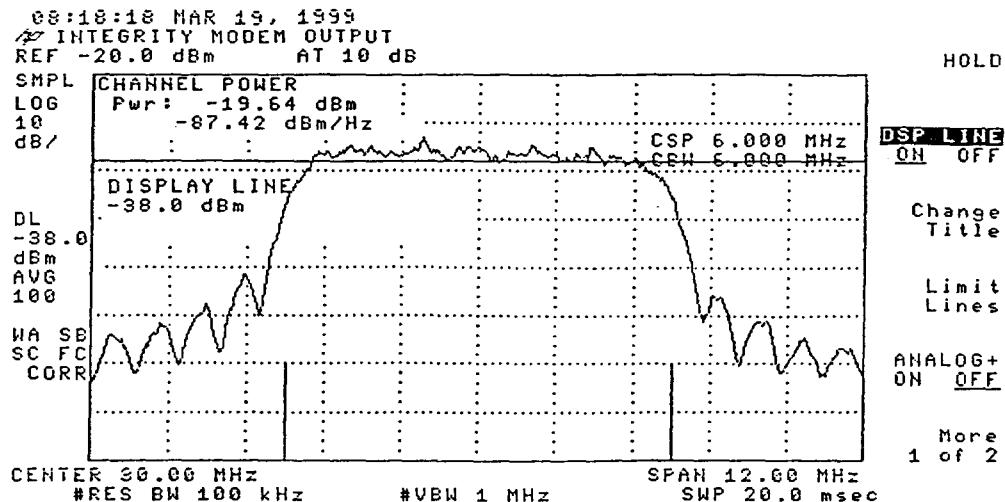
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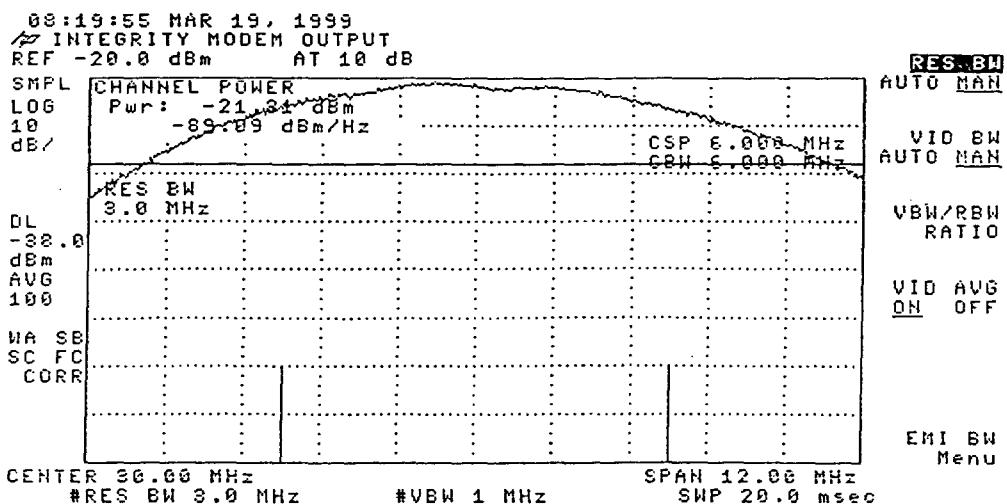
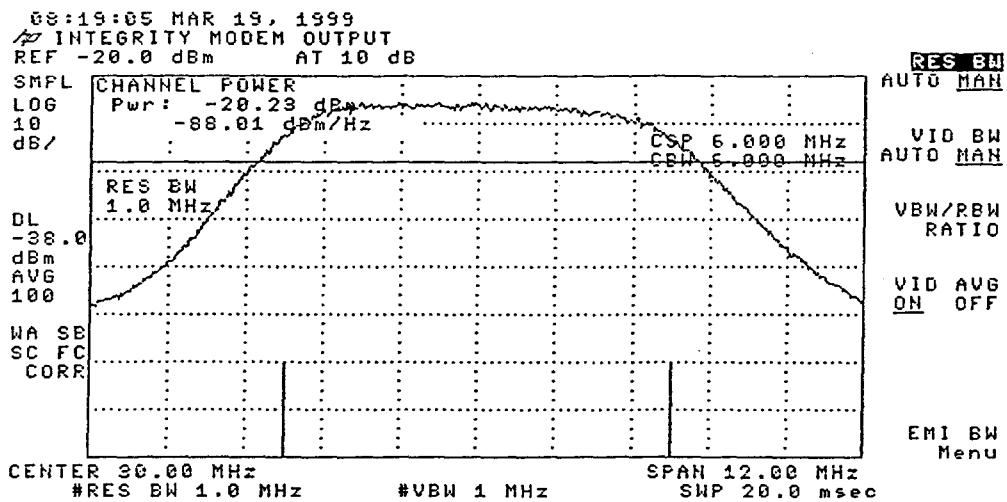
- Template, 12 Mhz span



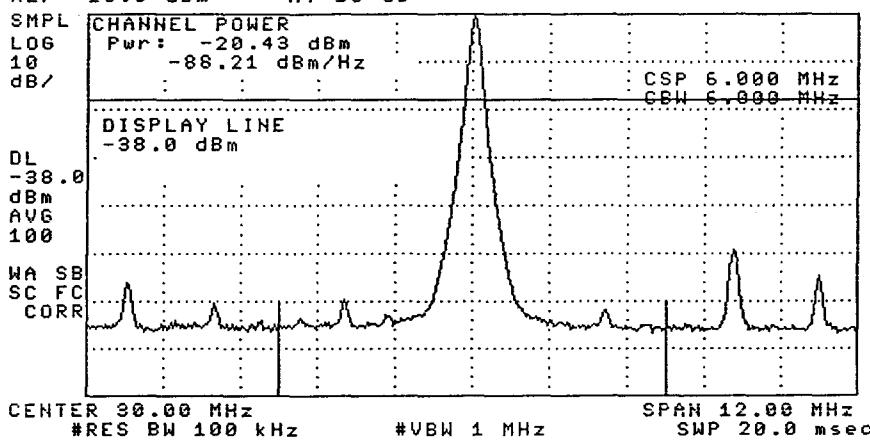


-19.93 dBm

RMS POWER METER



08:12:18 MAR 19, 1999
INTEGRITY MODEM OUTPUT
REF -20.0 dBm AT 10 dB



HOLD

DSP LINE
ON OFF

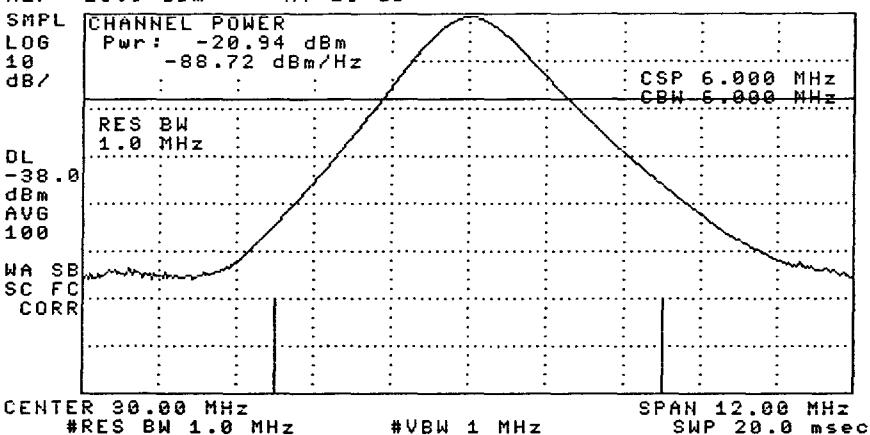
**Change
Title**

Limit Lines

**ANALOG+
ON OFF**

1 More
of 2

08:12:59 MAR 19, 1999
INTEGRITY MODEM OUTPUT
REF -20.0 dBm AT 10 dB



RES BW
AUTO MAN

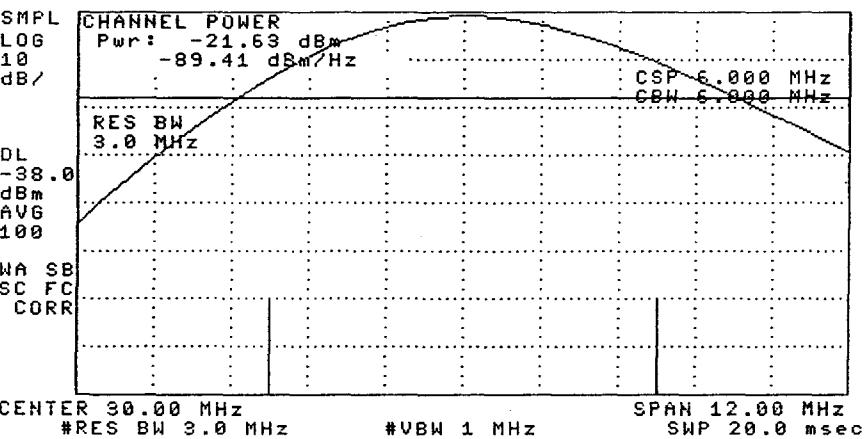
VID BW
AUTO MAN

VBW/RBW
RATIO

VID AVG
ON OFF

EMI BW
Menu

98:13:39 MAR 19, 1999
INTEGRITY MODEM OUTPUT
REF -20.0 dBm AT 10 dB



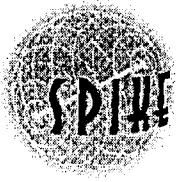
RES BW
AUTO MAN

VID BW
AUTO MAN

VBW/RBW
RATIO

VID AVG
ON OFF

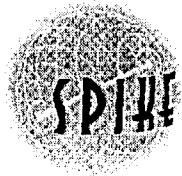
EMI SW
Menu



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- Continue to specify off-channel emissions at a fixed level relative to channel power.
- For measurement purposes define the flat top and off-channel emissions in terms of the fixed mask.
- Promote conversion from analog to digital through reuse of existing transmission equipment.
- Allow for use of equipment suitable to competing “wired” operators.
- Promote competition with cost effective equipment while maintaining interference protection.



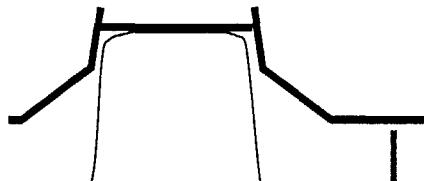
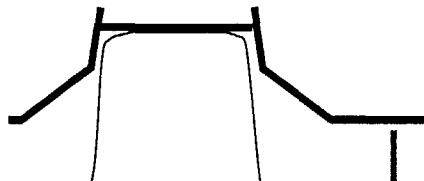
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- Allow for choice of the resolution bandwidth used in measurements.

Attenuation in dB (relative to flat top) =

Specified attenuation in dB (below channel power) $-10\log(C_{BW}/R_{BW})$.

Specified Attenuation	$10\log(C_{BW}/R_{BW})$	Attenuation (Rel to flattop)	
25	RBW=100kHz 17.8	7.2	
40	17.8	22.2	
60	17.8	42.2	
Specified Attenuation	$10\log(C_{BW}/R_{BW})$	Attenuation (Rel to flattop)	
25	RBW=10kHz 27.8	-2.8	
40	27.8	12.2	
60	27.8	32.2	